Abstract

A Method for identifying one or a small number of molecules, especially in a dilution of ≤ 1 μM, using laser excited FCS with measuring times ≤ 500 ms and short diffusion paths of the molecules to be analyzed, wherein the measurement is performed in small volume units of preferably ≤ 10^{-14} l, by determining material-specific parameters which are determined by luminescence measurements of molecules to be examined.

The device which can be ~~preferably~~ used for performing the method according to the invention is a per se known system of microscope optics for laser focusing for fluorescence excitation in a small measuring compartment of a very diluted solution and for imaging the emitted light in the subsequent measurement through confocal imaging wherein at least one system of optics with high numerical aperture of preferably ≥ 1.2 N.A. is employed, the light quantity is limited by a confocally arranged pinhole aperture in the object plane behind the microscope objective, and the measuring compartment is positioned at a distance of between 0 and 1000 μm from the observation objective.